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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/396,715 09/15/99 TONG

Y 5619-NEEC

EXAMINER

IM22/0620

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ART UNIT

PAPER NUMBER

1764

DATE MAILED:

06/20/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/396,715

Applicant

Tong

Examiner

Bekir L. Yildirim

Group Art Unit

1764



☐ Responsive to communication(s) filed on _____

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-33 is/are pending in the application.

Of the above, claim(s) 27-33 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-26 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2

☒ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 1764

DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-26, drawn to a fouling-inhibition process, classified in class 208, subclass 48AA.
 - II. Claims 27-33, drawn to a combination chemical reactor-injection apparatus, classified in class 422, subclass various.
2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the instant apparatus can be used to practice another and materially different process such as, as a reactor for conversion of a particular hydrocarbon fraction, among a battery of hydrocarbon reactors.
3. Because these inventions are distinct for the reasons given above, have acquired a separate status in the art as shown by their different classification, have acquired a separate status in the art because of their recognized divergent subject matter, and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

Art Unit: 1764

4. During a telephone conversation with Michael Martin on June 16, 2000 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-26. Affirmation of this election must be made by applicant in replying to this Office action. Claims 27-33 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1764

7. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admission considered with Kaplan et al. (USP 4,842,716) and Stein et al. (USP 5,632,865) .

The invention is directed to the heating of the phosphorous-sulfur compounds in the claims before contact with heat-transfer surfaces so as to inhibit fouling.

The phosphorous-sulfur compounds in the claims are well-known antifoulants for hydrocarbon conversion apparatus under elevated temperatures. In the paragraph bridging pages 3 and 4 of the specification the applicant admits this fact, by citing the reference teachings employing these antifoulants. The examiner reviewed the references and agrees with the applicant regarding the disclosure of the phosphorous-sulfur antifoulants. The claims then becomes those of "Jepson type", i.e. directed to the improvement over what is known.

The alleged improvement over the prior art is presented in the first full paragraph of the disclosure, which is incorporated into the claims, namely the "thermal treatment", i.e. the heating of the antifoulant.

Kaplan et al. confirms the admission by the applicant, by teaching the utility of the claimed antifoulants in inhibiting fouling on heat-exchange surfaces of hydrocarbon processing equipment, along with a corrosion inhibitor, which may function as netralizer of antifoulants thus reducing corrosive tendencies thereof. See supra..

Art Unit: 1764

It is acknowledged that the applicant does not admit that the recited antifoulants are thermally treated prior to contacting the surfaces and Kaplan et al. does not disclose the thermal treatment per se..

Stein et al. teaches a method for injection of "aggressive liquid additives" into vapor-containing process lines and equipment, exemplified by those in hydrocarbon processing (which corresponds to heat transfer surfaces in the claims), wherein the "aggressive liquid additive" (defined as those that pose corrosion problems if contacted in liquid form), is introduced after being heated by heating means (i.e. "thermally treated") (see col. 1, lines 12-18, col. 2, lines 5-10, 23-35, 44-52, col. 3, lines 1-5, 47-56).

It would have been obvious then to modify the admitted prior art teachings and/or the teachings of Kaplan et al. by preheating the antifoulant as suggested by Kaplan et al. since it was known, as explained by Kaplan et al. that the antifoulants themselves may pose corrosion threats and making them "aggressive liquid" as described by Stein, which threat is inhibited by the "thermal treatment" as taught by Stein.

Furthermore, it is notoriously well-known that antifoulants are often introduced with inert gases or liquids, such as nitrogen, or steam as recited in some of the instant claims, and in Kaplan et al. The introduction of antifoulant with steam prior to feed introduction itself would also constitute "thermal treatment".

Art Unit: 1764

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bekir L. Yildirim whose telephone number is (703) 308-3586. The examiner can normally be reached on weekdays from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian Knode, can be reached on (703) 308-4311. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-6078.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0611.

B.L.Y.

June 17, 2000



Bekir L. Yildirim
Primary Examiner